

**REMARKS**

Claims 1-18 are pending in this application. By this Amendment, the specification and claims 1-16 are amended. Claims 17 and 18 are added. No new matter is added.

**I. Specification**

The specification is objected to for spelling errors at pages 8 and 9. The specification is amended to correct those errors, as well as a number of additional spelling errors.

The title of the application is also objected to. As the title is amended as suggested in the Office Action, withdrawal of the objection to the specification is respectfully requested.

**II. Drawings**

The drawings are objected to under 37 C.F.R. §1.83(a). Specifically, it is alleged that the "storage element" disclosed in claims 1 and 11 must be shown or the feature canceled from the claims. The storage element recited in the claims is shown in at least Fig. 3 as reference number 9 which identifies the battery. Additionally, as disclosed in the specification at page 8, lines 4 and 5, "The battery 9 functions as the power supply and the storage unit." Thus, the claimed feature is shown in the figures. Accordingly, withdrawal of the objection to the figures is respectfully requested.

**III. Claim Rejections Under 35 U.S.C. §112**

Claims 1-16 are rejected under 35 U.S.C. §112, second paragraph. The Office Action identifies specific language in claims 1 and 11, as well as claims 2 and 12, which is alleged to be unclear. As claims 1, 2, 11 and 12 are amended, withdrawal of the rejection of claims 1-16 under 35 U.S.C. §112, second paragraph, is respectfully requested.

**IV. Claim Rejection Under 35 U.S.C. §102**

Claim 1 is rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,516,066 to Nowakowski. The rejection is respectfully traversed.

Nowakowski fails to disclose each and every feature recited in the rejected claim, as amended. For example, Nowakowski fails to disclose a control apparatus for use with an on-vehicle generator provided with a stator winding and a field winding and driven to rotate by an on-vehicle engine, the control apparatus comprising, a single power supply, which is directly connected to an output terminal of the generator, providing current to the field winding to excite the field winding; a storage element chargeable and connected directly to the output terminal of the generator; a switching circuit having a switching element configured to be turned on and off and to selectably and electrically connect or disconnect a current path between the field winding and the output terminal; and a regeneration circuit configured to provide, through the terminal, the storage element with current flowing through the field winding depending on magnetic energy preserved in the field winding when the switching element is turned off, as recited in amended claim 1.

Nowakowski relates to a dual-voltage battery charging system where a pair of series-connected batteries are used to provide a voltage that corresponds to the sum of the terminal voltages of the batteries for energizing an electric cranking motor, and where one of the batteries feeds the accessory loads on the vehicle (col. 1, lines 4-10). The dual voltage battery charging system of Nowakowski, includes a generator 10 having a stator winding 12 and a field winding 14. Also included is the two battery power supply system including a 12-volt accessory battery 26 and a 4-volt cranking battery 30 which is utilized only for energizing an electric cranking motor. The cranking battery has its negative terminal connected to a junction 28 and its positive terminal connected to a conductor 32 (Col. 1, line 57 - col. 2, line 25.)

However, neither of the batteries 26, 30 (power supply) is directly connected to an output terminal of the generator, providing current to the field winding to excite the field winding.

Additionally, Nowakowski discloses a two-battery system in which the cranking battery is dedicated to regeneration (see col. 3, lines 25-36).

Thus, withdrawal of the rejection of claim 1 under 35 U.S.C. §102 is respectfully requested.

**V. Claim Rejections Under 35 U.S.C. §103**

Claim 2 is rejected under 35 U.S.C. §103(a) as unpatentable over Nowakowski in view of U.S. Patent No. 5,986,436 to Liu. The rejection is respectfully traversed.

Claim 2 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein. Additionally, as Liu fails to overcome the deficiencies of Nowakowski, the combination of references fails to disclose or suggest each and every feature recited in the rejected claims.

Claim 11 is rejected under 35 U.S.C. §103(a) as unpatentable over Nowakowski in view of U.S. Patent No. 6,329,797 to Bluemel et al (Bluemel). The rejection is respectfully traversed.

Neither Nowakowski or Bluemel, whether considered alone or in combination, disclose or suggest each and every feature recited in the rejected claim, as amended. For example, the combination of references fails to disclose or suggest an on-vehicle power supply system comprising a control apparatus for use with an on-vehicle generator provided with a stator winding and a field winding and driven to rotate by an on-vehicle engine; a single power supply, which is directly connected to an output terminal of the generator, providing current to the field winding to excite the field winding, and a chargeable storage element connected directly to the output terminal of the generator and electrically connected to the power supply in parallel; wherein the control apparatus comprises a switching circuit having a switching element configured to be turned on and off and to selectably and electrically connect or disconnect a current path between the field winding and the terminal;

and a regeneration circuit configured to provide, through the terminal, the storage element with current flowing through the field winding depending on magnetic energy preserved in the field winding when the switching element is turned off, as recited in amended claim 11.

As discussed above, Nowakowski fails to disclose a single power supply which is directly connected to an output terminal of the generator, providing current to the field winding to excite the field winding. As Bluemel fails to overcome this deficiency, the combination of references fails to disclose each and every feature recited in the rejected claims. And furthermore, neither of the applied references discloses or suggests the chargeable storage element connected directly to the output terminal of the generator.

Bluemel relates to an energy supply device for an electromagnetic valve control of an internal combustion engine (col. 1, lines 8-10). As shown in Fig. 1 of Bluemel, the output terminal 8 is not directly connected to a single power supply and is not directly connected to a chargeable storage element. Furthermore, Bluemel fails to disclose or suggest a switching circuit that selectably and electrically connects or disconnects a current path between a field winding and the output terminal. Thus, withdrawal of the rejection of claim 11 under 35 U.S.C. §103(a) is respectfully requested.

Claim 12 is rejected under 35 U.S.C. §103(a) as unpatentable over Nowakowski and Bluemel and further in view of Liu. The rejection is respectfully traversed.

Claim 12 is allowable for at least its dependency on independent claim 11 for the reasons discussed above, as well as for the additional features recited therein. Furthermore, as Liu fails to overcome the deficiencies of Nowakowski and Bluemel, withdrawal of the rejection of claim 12 is respectfully requested.

## **VI. New Claims**

None of the applied references, whether considered alone or in combination, disclose or suggest each and every feature recited in claims 17 and 18. For example, the combination

of references fails to disclose or suggest a control apparatus for use with an on-vehicle generator provided with a stator winding and a field winding and driven to rotate by an on-vehicle engine, the control apparatus comprising a single battery serving as both of a power supply providing current to the field winding to excite thereof and a storage element that is chargeable, the battery being connected directly to an output terminal of the generator; a switching circuit having a switching element configured to be turned on and off and to selectably and electrically connect or disconnect a current path between the field winding and the terminal connected to the battery; and a regeneration circuit configured to provide, through the terminal, the storage element with current flowing through the field winding depending on magnetic energy preserved in the field winding when the switching element is turned off.

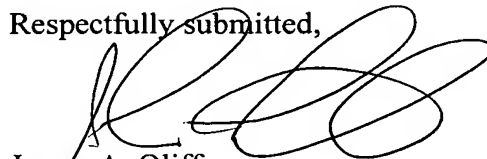
Furthermore, claim 17 is allowable for its dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein.

## **VII. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:  
Petition for Extension of Time

Date: June 14, 2005

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